UNITED STATES PATENT AND TRADEMARK OFFICE

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER
ZHE, MENG YAO

ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2006*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *4/10/09 1/6/09 5/26/06*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-11 are presented for examination.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claim 11 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4.   Claim 11 is rejected because the claimed invention, appearing to be comprised of <u>software alone</u> without claiming associated <u>computer hardware</u> required for execution, is not supported by either a specific and substantial asserted utility (i.e., transformation of data) or a well established utility (i.e. a practical application).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Armstrong et al., Pub. No. 2002/0156824 (hereafter Armstrong) in view of Bean et al.,

Patent No. 4,843,541 (hereafter Bean).

7.   As per claims 1, 11 Armstrong teaches an information processing apparatus,

having a first physical processor and a plurality of second physical processors, for

processing data by allocating a plurality of logical processors to the plurality of second

physical processors (Fig 3; Para 34, 39) in a time sharing manner (Para 23), the

information processing apparatus comprising a context management unit, the context

management unit mapping a context for a logical processor having no physical

processor allocated thereto, to a logical partition space of a logical partition to which the

logical processor is applied (Para 39), storing the mapped context (Para 55-56),

Armstrong does not specifically teach that the partition space is specified using

addresses and notifying the logical processor of an access address of the context, and

the logical processor accessing the context using the access address.

However, Bean teaches that the partition space is specified using addresses

(Column 50, lines 55-68) and notifying the logical processor of an access address of the

context (Column 51, lines 14-16: the act of binding corresponds to notifying the logical

processor of what is available), and the logical processor accessing the context using

the access address (Column 51, lines 39-48; Column 28, lines 33-36) for the purpose of

letting the logical CPU know of its defined range of allowed access.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Armstrong with the specifics of the partition space is specified using addresses and notifying the logical processor of an access address of the context, and the logical processor accessing the context using the access address so that the logical CPU may gain knowledge of its defined range of access.

8.   As per claim 7, Armstrong teaches a process control method of an information processing apparatus, having a first physical processor and a plurality of second physical processors, for processing data by allocating a plurality of logical processors to the plurality of second physical processors (Fig 3; Para 34, 39) in a time sharing manner (Para 23, 59), comprising: a logical processor scheduling step of scheduling the logical processor to exclude the logical processor from an allocation candidate to be allocated to the second physical processor (Para 61: when one has reached its cap/limit, it is excluded from further execution); a context storage step of mapping a context for the logical processor excluded as an allocation candidate to be allocated to the second physical processor to a logical partition address space of a logical partition to which the logical processor is applied, storing the mapped context (Para 62).

Bean teaches that the partition space is specified using addresses (Column 50, lines 55-68) and notifying the logical processor of an access address of the context (Column 51, lines 14-16: the act of binding corresponds to notifying the logical processor of what is available), and the logical processor accessing the context using the access address (Column 51, lines 39-48; Column 28, lines 33-36).

9.   As per claim 2, Bean teaches a control operating system allocating the plurality

of logical processors to the second physical processor in a time sharing manner

(Column 22, lines 43-55: the host corresponds to the control operating system), and a

guest operating system associated with the logical partition to which the logical

processor is applied (Column 1, lines 44-53). Armstrong teaches wherein the control

operating system maps the context for the logical processor of the guest operating

system associated logical partition to the logical partition space of the guest operating

system associated logical partition and stores the mapped context (Para 63: the virtual

processor is only allowed to execute within it's allowed physical processor pool).

Armstrong does not specifically teach a call from the guest operating system to

the control operating system. However, when the guest requests for execution and puts

itself in a queue (Para 58, 61) for the hypervisor to manage future execution, it would

have been obvious to one having ordinary skill in the art to use a call instruction from

the guest to the control operating system to place the request.

10.   As per claims 3, 8, Armstrong teaches wherein based on the system call from the

guest operating system to the control operating system, the control operating system

excludes the logical processor to which the guest operating system associated logical

partition is applied, from the time sharing process as an allocation target to be allocated

the second physical processor, maps the context for the logical processor to the logical

partition address space, and stores the mapped context (Para 61: when the partition

reaches its limit, that partition is excluded from executing on t the second physical

processor).

11.   As per claims 4, 9, Armstrong teaches wherein the control operating system switches between an active state for allocating the logical processor to the physical processor and an inactive state for not allocating the logical processor to the physical processor, and wherein the control operating system sets the guest operating system applied logical processor to be in inactive state, maps the context of the logical processor to the logical partition address space, and stores the context, based on the system call from the guest operating system to the control operating system (Para 61, 62).

12.   As per claims 5, 10, Armstrong teaches wherein the control operating system restores the logical processor back to an allocation candidate to be allocated to the physical processor with the guest operating system applied logical processor reset to the active state from the inactive state based on the system call from the guest operating system to the control operating system (Para 62).

13.   As per claim 6, Bean teaches wherein the context management unit stores the context of the logical processor in at least one of a register of the logical processor (Column 51, lines 10-14), an input-output port (Column 51, lines 26-30), and a local storage (Column 50, lines 63-67).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MENGYAO ZHE whose telephone number is (571)272-

6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mengyao Zhe/

/Li B. Zhen/
Primary Examiner, Art Unit 2194